

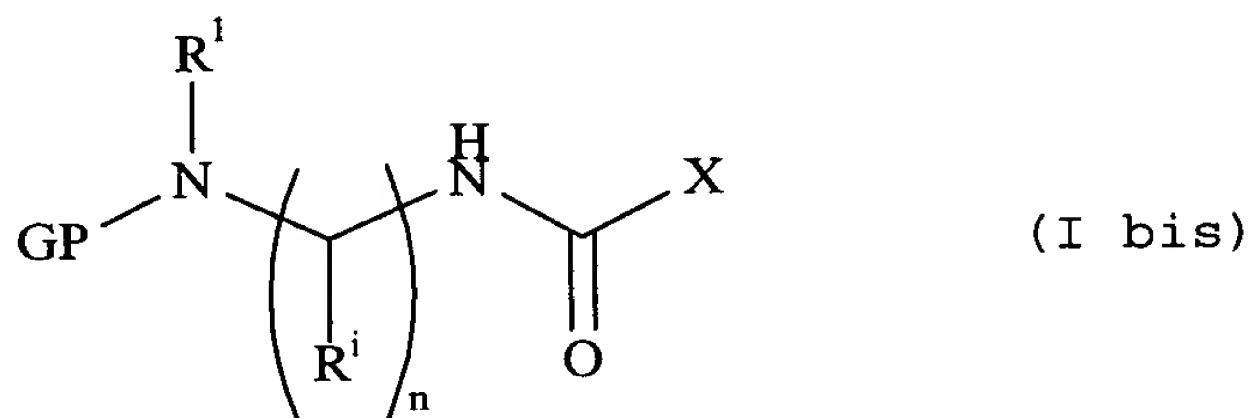
AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-53. (canceled)

54. (currently amended) A compound having the formula  
(I bis)



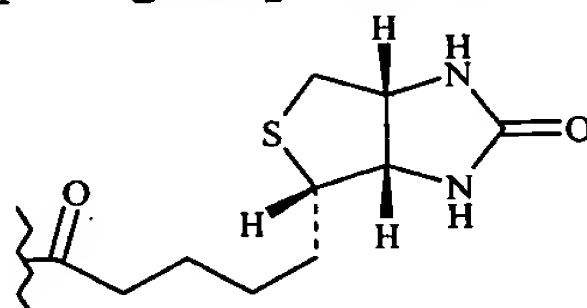
wherein

- "n" is a whole number comprised from 1 to 50,
- "i" is a whole number varying from 2 to n+1,
- GP represents:

\* a protective group selected from:

- . an oxycarbonyl group ROCO, R representing an alkyl group of 1 to 20 carbon atoms, unsubstituted or substituted with an aryl group whose cyclic structure contains 5 to 20 carbon atoms, said alkyl group being saturated or not,
- . an acyl group RCO, R being chosen from: an alkyl group of 1 to 20 carbon atoms or an aryl group whose cyclic structure contains 5 to 20 carbon atoms, said alkyl group being possibly substituted with an aryl group whose cyclic structure contains 5 to 20 carbon atoms, said alkyl group being saturated or not,
- . an alkyl group,

- . an aryl group,
- . a group of formula  $-\text{CONHR}$ , R being defined as above,
- . a phthalimido group (with  $R^1 = \emptyset$ ),
- . a biotinyle group having the following formula



- .  $\text{O}_2$  (with  $R^1 = \emptyset$ ),
- groups  $R^1$  and  $R^i$  can each represent independently from each other: a hydrogen, a halogen, the protected or unprotected side chain of an amino acid selected from natural and synthetic amino acids, a  $(\text{C}_1\text{-C}_{20})$  alkyl group, unsubstituted or substituted, an aryl group whose cyclic structure contains 5 to 20 carbon atoms, a group  $\text{OR}_a$ ,  $-\text{NH}_2$ ,  $-\text{OH}$ ,  $-\text{COOR}_a$ ,  $-\text{CONHR}_a$ ,  $-\text{CONH}_2$ ,  $-\text{CH}_2\text{COOR}_a$ ,  $-\text{CH}_2\text{CONHR}_a$ ,  $-\text{CH}_2\text{CONH}_2$ ,

$R_a$  representing an alkyl group, saturated or not, having 1 to 20 carbon atoms, an aralkyl group having 1 to 20 carbon atoms, or an aryl group whose cyclic structure contains 5 to 20 carbon atoms,

- $R^1$  and  $R^i$  groups can also form a cycle on the basis of intramolecular cyclisations which are as follows:

1/ cyclization between  $R^1$  and  $R^{i+kc}$ , where  $kc$  is a whole positive number,

2/ cyclization between  $R^1$  and  $R^i$  with preferably  $i = 2, 3$  or  $4$ ,

- X group represents a group conferring on the compound of formula (I bis) a structure of an activated derivative of carbamic acid, wherein said X group is derived from a compound selected from phenols, optionally substituted with

at least one nitro or at least one halogen, or from hydroxylamine compounds, imidazole and tetrazole,

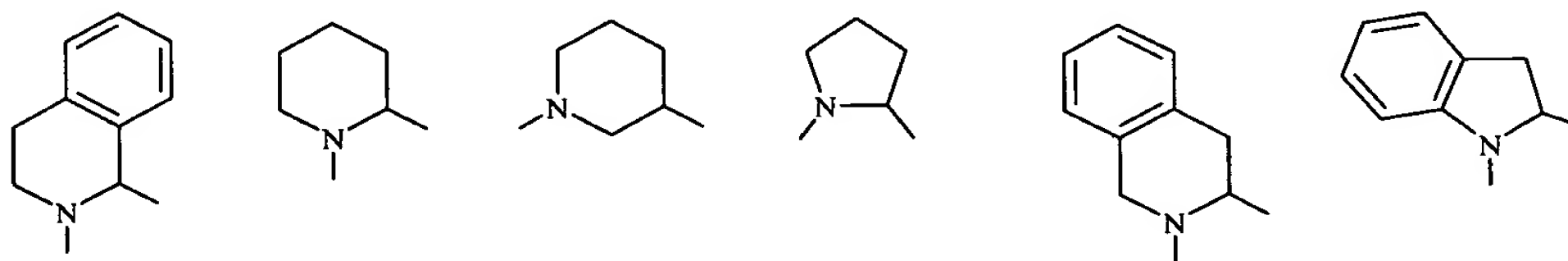
and

wherein said compound is not one of the following compounds selected from the group consisting of:

- $n=2$ ,  $GP=Boc$ ,  $R^1=isobutyl$ ,  $R^2=R^3=H$ ,  $X=4\text{-nitrophenol}$ ;
- $n=2$ ,  $GP=Boc$ ,  $R^1=benzyl$ ,  $R^2=R^3=H$ ,  $X=4\text{-nitrophenol}$ ;
- $n=2$ ,  $GP=Boc$ ,  $R^1=CH_2\text{-}p\text{-}C_6H_4Ot\text{-}Bu$ ,  $R^2=R^3=H$ ,  $X=4\text{-nitrophenol}$ ;
- $n=2$ ,  $GP=Boc$ ,  $R^1=H$ ,  $R^2=R^3=H$ ,  $X=4\text{-nitrophenol}$ .

55. (previously presented) The compound according to claim 54, wherein GP represents an oxycarbonyl group chosen from Boc, Fmoc, benzyloxycarbonyl or allyloxycarbonyl.

56. (previously presented) The compound according to claim 54, wherein  $R^1$  and  $R^1$  groups can form a cycle with N selected from the group consisting of

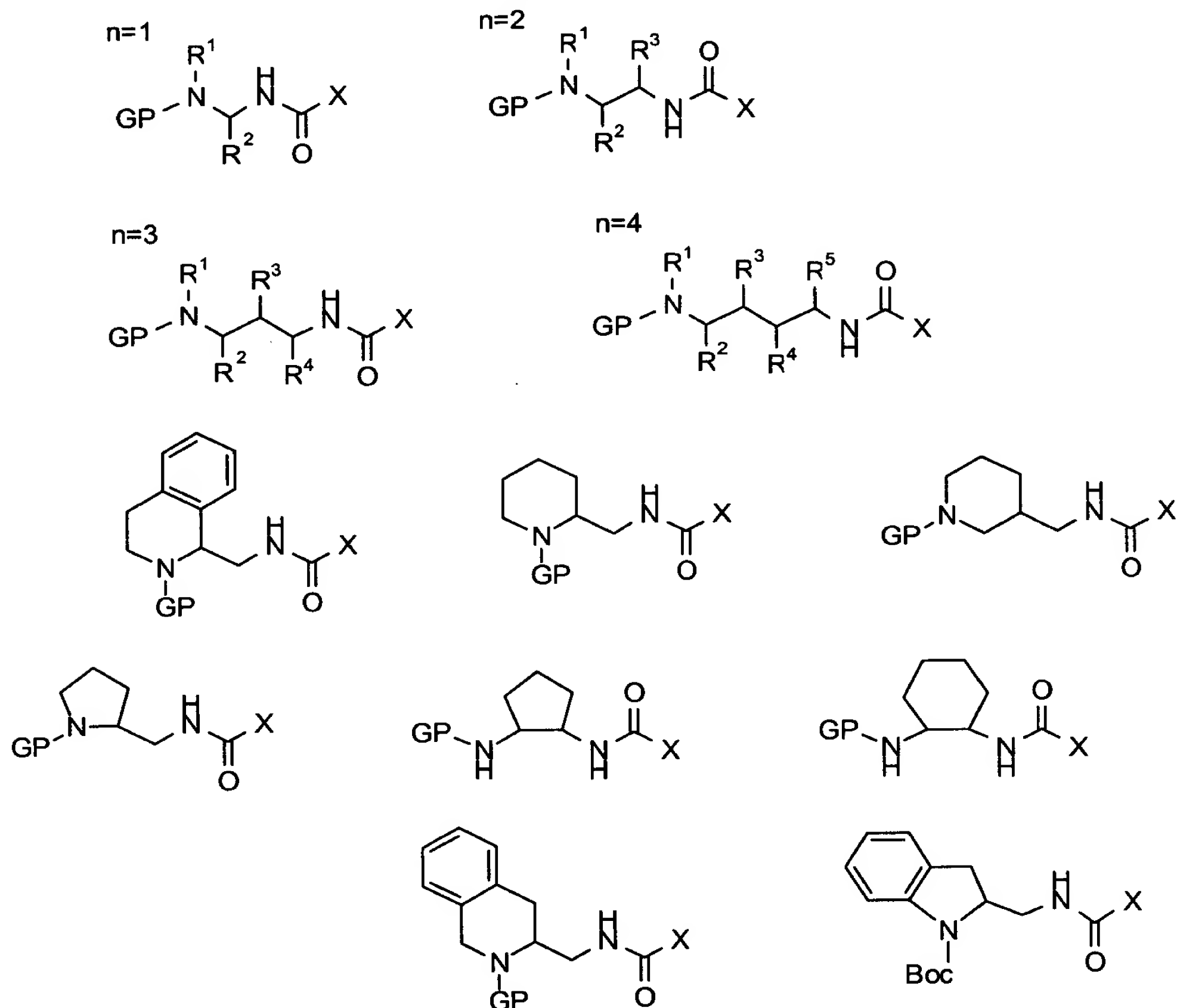


57. (currently amended) The compound according to claim 54, wherein X group is derived from a compound selected from the group consisting of: N-hydroxysuccinimide, hydroxy-1,2,3-benzotriazole, 1-oxo-2-hydroxydihydrobenzotriazine (HODhbt), 7-aza-1-hydroxy-benzotriazole (HOAt), and 4-aza-1-hydroxybenzotriazole (4-HOAt).

58. (currently amended) The compound according to claim 54, having the formula (I bis) in which  $1 < n < 4$ , and X is

derived from p-nitrophenol, N-hydroxysuccinimide, pentafluorophenol, hydroxy-1,2,3-benzotriazole or imidazole.

59. (previously presented) The compound according to claim 58, having one of the following formulas:



wherein  $\text{R}^2$ ,  $\text{R}^3$ ,  $\text{R}^4$  and  $\text{R}^5$  have the same meanings as  $\text{R}^1$ .

60. (currently amended) The compound according to claim 59, wherein X is derived from a N-hydroxysuccinimide group.

61. (previously presented) The compound according to claim 54, wherein the alkyl group corresponding to  $\text{R}^1$  or  $\text{R}^i$

is substituted with one or several substituents selected from the group consisting of  $-\text{COOR}_h$ ,  $-\text{CONHR}_h$ ,  $-\text{COOH}$ ,  $-\text{OH}$ ,  $-\text{OR}_h$ ,  $-\text{NHR}_h$ ,  $-\text{NH}_2$ ,

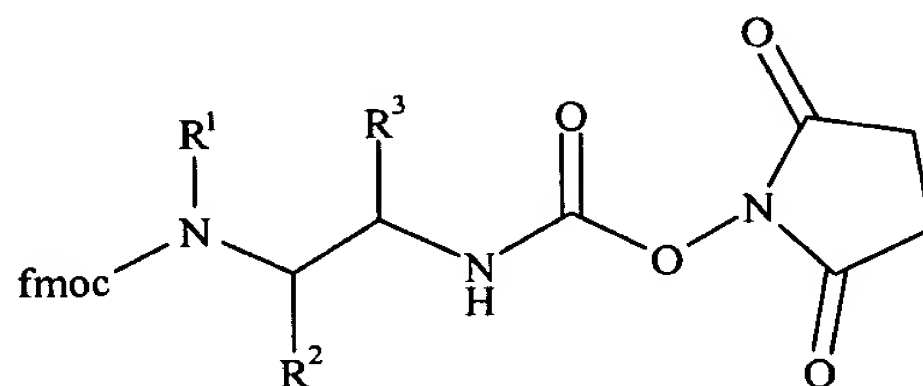
$-\text{NH}(\text{CO})\text{R}_h$ , an aryl group whose cyclic structure contains 5 to 20 carbon atoms, halogen, carbonyl, nitrile, and guanidino,

$\text{R}_h$  representing an alkyl group, saturated or not, having 1 to 20 carbon atoms, an aralkyl group having 1 to 20 carbon atoms, or an aryl group whose cyclic structure contains 5 to 20 carbon atoms,

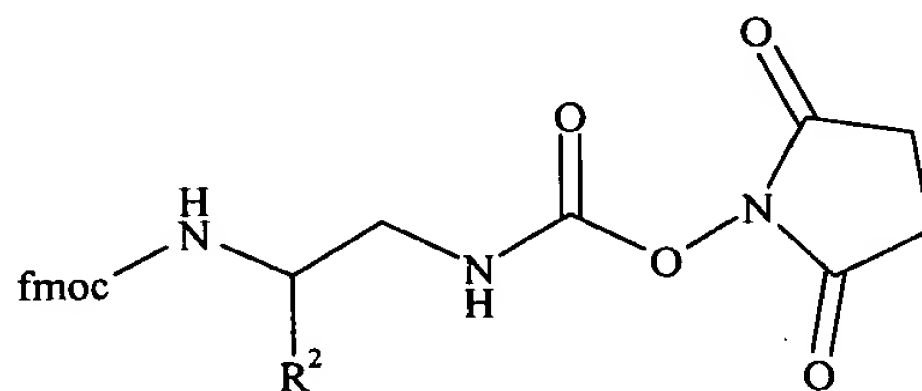
62. (previously presented) The compound according to claim 60, wherein GP is an oxycarbonyl group.

63. (previously presented) The compound according to claim 62, wherein GP is a Fmoc or Boc group.

64. (previously presented) The compound according to claim 54, having the following formula

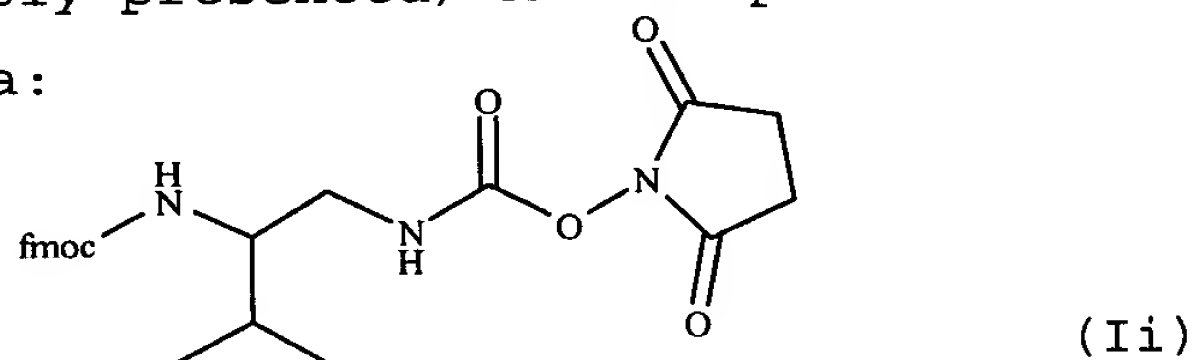


65. (previously presented) The compound according to claim 64, having the following formula:



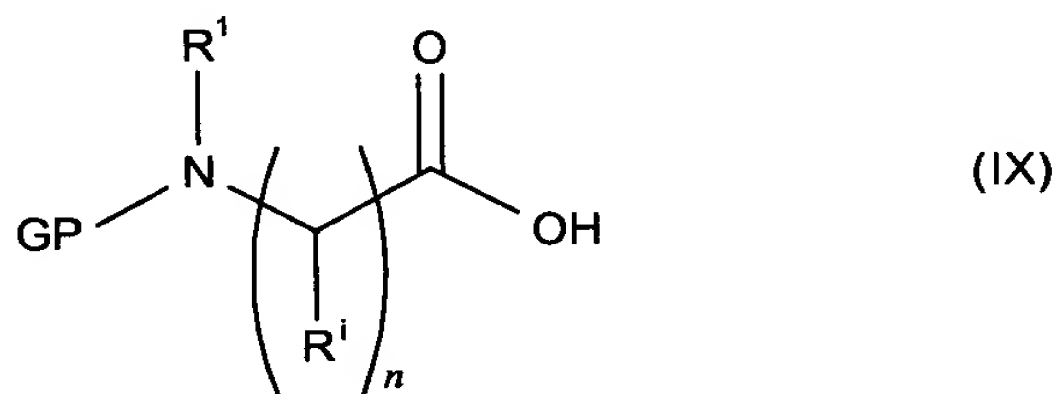
66. (previously presented) The compound according to claim 65, wherein  $R^2$  represents a  $(C_1-C_{20})$  alkyl group, optionally substituted with a phenyl group, and wherein said phenyl group is optionally substituted with an alkoxy group.

67. (previously presented) A compound having the following formula:

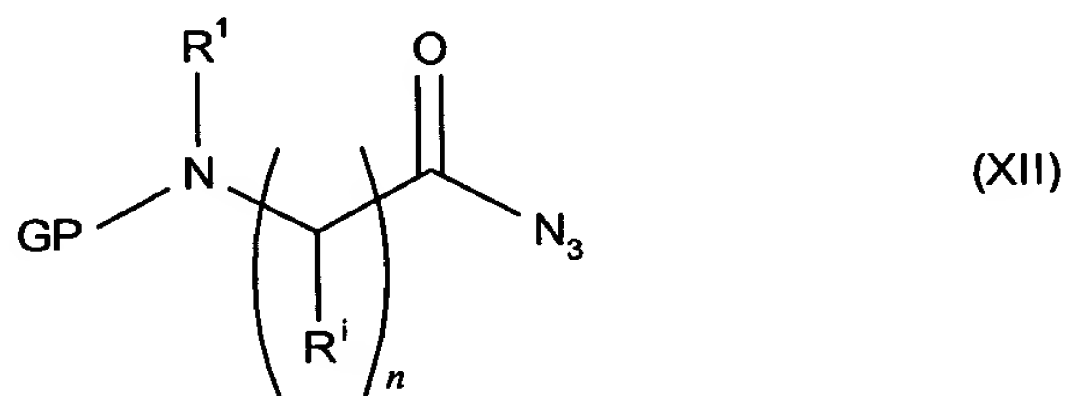


68. (previously presented) A process for preparing a compound according to claim 54, comprising:

providing a compound of formula (IX)



transforming said compound (IX) into a corresponding acyl azide (XII)



transforming said acyl azide (XII) by Curtius rearrangement into a corresponding isocyanate (II),

treating said isocyanate (II) under conditions that provide a carbamic acid compound of formula (I bis).

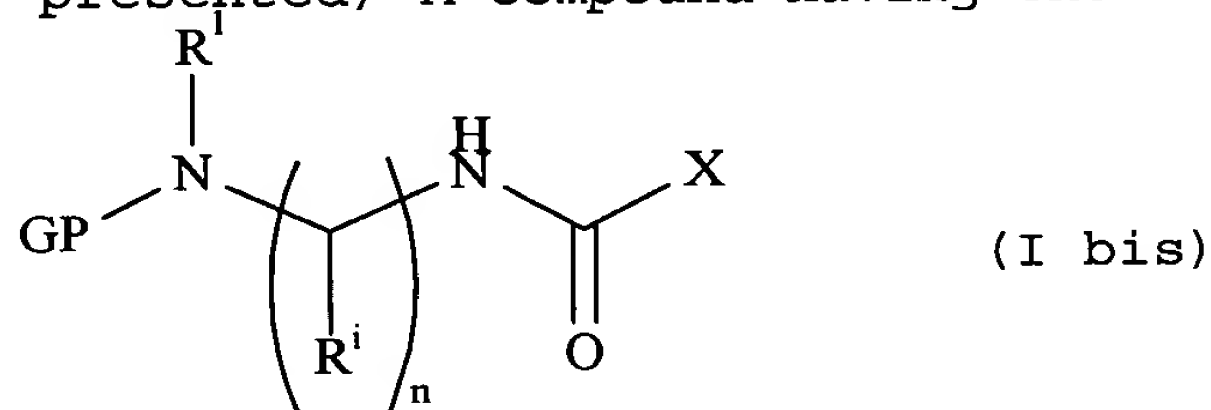
69. (previously presented) The process according to claim 68, wherein transforming said compound (IX) into a

corresponding acyl azide (XII) is carried out by treatment of a mixed anhydride, formed by the reaction of acid compound (IX) with ethyl or isobutyl chloroformate in the presence of a tertiary amine, wherein said tertiary amine is NMM (N-methylmorpholine), DIEA (di-isopropylethylamine), or Et<sub>3</sub>N in THF (tetrahydrofuran) with a sodium azide solution,

wherein said step of transforming acyl azide (XII) into a corresponding isocyanate (II), is carried out by heating a solution of acyl azide in a solvent, and

wherein a compound selected from the group consisting of N-hydroxysuccinimide, phenol, penta-fluorophenol, pentachlorophenol, p-nitrophenol, 2,4-dinitrophenol, 2,4,5-trichlorophenol, 2,4-dichloro-6-nitro-phenol, hydroxy-1,2,3-benzotriazole, imidazole, tetrazole, 1-oxo-2-hydroxydihydrobenzo-triazine (HODhbt), 7-aza-1-hydroxybenzotriazole (HOAt) and 4-aza-1-hydroxybenzo-triazole (4-HOAt), is the compound treating isocyanate (II) to obtain a carbamic acid derivative of formula (I bis).

70. (previously presented) A compound having the formula (I bis)



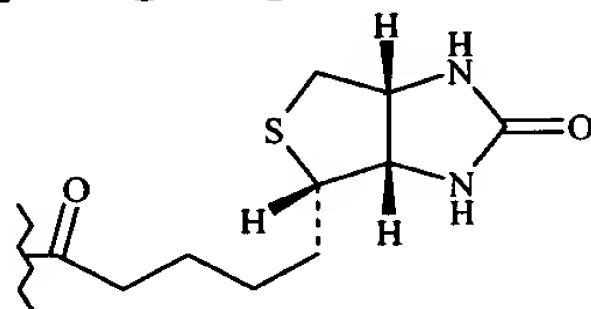
wherein

- "n" is a whole number comprised from 1 to 50,
- "i" is a whole number varying from 2 to n+1,
- GP represents:

\* a protective group selected from:

- . an oxycarbonyl group ROCO, R representing an alkyl group of 1 to 20 carbon atoms, unsubstituted or substituted with an aryl group whose cyclic

- structure contains 5 to 20 carbon atoms, said alkyl group being saturated or not,
- . an acyl group RCO, R being chosen from: an alkyl group of 1 to 20 carbon atoms or an aryl group whose cyclic structure contains 5 to 20 carbon atoms, said alkyl group being possibly substituted with an aryl group whose cyclic structure contains 5 to 20 carbon atoms, said alkyl group being saturated or not,
  - . a group of formula -CONHR, R being defined as above,
  - . a phthalimido group (with  $R^1 = \emptyset$ ),
  - . a biotinyle group having the following formula



- .  $O_2$  (with  $R^1 = \emptyset$ ),
- groups  $R^1$  and  $R^i$  can each represent independently from each other: a hydrogen, a halogen, the protected or unprotected side chain of an amino acid selected from natural and synthetic amino acids, a  $(C_1-C_{20})$  alkyl group, unsubstituted or substituted, an aryl group whose cyclic structure contains 5 to 20 carbon atoms, a group  $OR_a$ ,  $-NH_2$ ,  $-OH$ ,  $-COOR_a$ ,  $-CONHR_a$ ,  $-CONH_2$ ,  $-CH_2COOR_a$ ,  $-CH_2CONHR_a$ ,  $-CH_2CONH_2$ ,

$R_a$  representing an alkyl group, saturated or not, having 1 to 20 carbon atoms, an aralkyl group having 1 to 20 carbon atoms, or an aryl group whose cyclic structure contains 5 to 20 carbon atoms,

- $R^1$  and  $R^i$  groups can also form a cycle on the basis of intramolecular cyclisations which are as follows:



1/ cyclization between  $R^i$  and  $R^{i+kc}$ , where  $kc$  is a whole positive number,

2/ cyclization between  $R^1$  and  $R^i$  with preferably  $i = 2$ ,  
3 or 4,

- X group is selected from the group consisting of N-hydroxysuccinimide, hydroxy-1,2,3-benzotriazole, 1-oxo-2-hydroxydihydrobenzotriazine (HODhbt), 7-aza-1-hydroxybenzotriazole (HOAt), and 4-aza-1-hydroxybenzotriazole (4-HOAt)

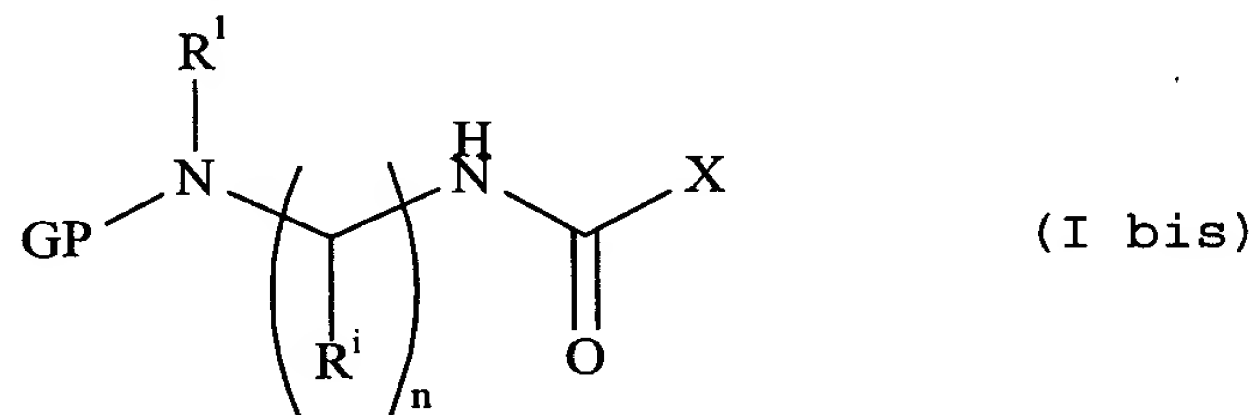
and

wherein said compound is not one of the following compounds selected from the group consisting of:

- n=2, GP=Boc, R<sup>1</sup>=isobutyl, R<sup>2</sup>=R<sup>3</sup>=H, X=4-nitrophenol;
- n=2, GP=Boc, R<sup>1</sup>=benzyl, R<sup>2</sup>=R<sup>3</sup>=H, X=4-nitrophenol;
- n=2, GP=Boc, R<sup>1</sup>=CH<sub>2</sub>-p-C<sub>6</sub>H<sub>4</sub>Ot-Bu, R<sup>2</sup>=R<sup>3</sup>=H, X=4-nitrophenol;
- n=2, GP=Boc, R<sup>1</sup>=H, R<sup>2</sup>=R<sup>3</sup>=H, X=4-nitrophenol.

71. (previously presented) The compound according to claim 70, wherein X is a N-hydroxysuccinimide group.

72. (previously presented) A compound having the  
formula (I bis)  $\text{R}^1$

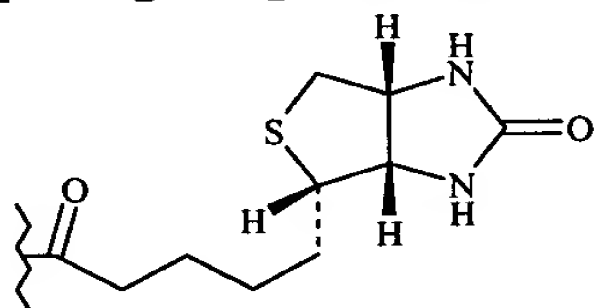


wherein

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- . a group of formula -CONHR, R being defined as above,
- . a phthalimido group (with  $R^1 = \emptyset$ ),
- . a biotinyle group having the following formula



- .  $O_2$  (with  $R^1 = \emptyset$ ),
- groups  $R^1$  and  $R^i$  can each represent independently from each other: a hydrogen, a halogen, the protected or unprotected side chain of an amino acid selected from natural and synthetic amino acids, a  $(C_1-C_{20})$  alkyl group, unsubstituted or substituted, an aryl group whose cyclic structure contains 5 to 20 carbon atoms, a group  $OR_a$ ,  $-NH_2$ ,  $-OH$ ,  $-COOR_a$ ,  $-CONHR_a$ ,  $-CONH_2$ ,  $-CH_2COOR_a$ ,  $-CH_2CONHR_a$ ,  $-CH_2CONH_2$ ,

$R_a$  representing an alkyl group, saturated or not, having 1 to 20 carbon atoms, an aralkyl group having 1 to 20 carbon atoms, or an aryl group whose cyclic structure contains 5 to 20 carbon atoms,

-  $R^1$  and  $R^i$  groups can also form a cycle on the basis of intramolecular cyclisations which are as follows:

1/ cyclization between  $R^i$  and  $R^{i+kc}$ , where  $kc$  is a whole positive number,

2/ cyclization between  $R^1$  and  $R^i$  with preferably  $i = 2, 3$  or  $4$ ,

-  $X$  group represents  $p$ -nitrophenol or pentafluorophenol,

and

wherein said compound is not one of the following compounds selected from the group consisting of:

- $n=2$ ,  $GP=Boc$ ,  $R^1=$ isobutyl,  $R^2=R^3=H$ ,  $X=4$ -nitrophenol;
- $n=2$ ,  $GP=Boc$ ,  $R^1=$ benzyl,  $R^2=R^3=H$ ,  $X=4$ -nitrophenol;
- $n=2$ ,  $GP=Boc$ ,  $R^1=CH_2-p-C_6H_4Ot-Bu$ ,  $R^2=R^3=H$ ,  $X=4$ -nitrophenol;
- $n=2$ ,  $GP=Boc$ ,  $R^1=H$ ,  $R^2=R^3=H$ ,  $X=4$ -nitrophenol.